

## Recent progress on global spin alignment of $\phi(1020)$ and $K^*(892)$ in heavy-ion collisions

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In non-central heavy-ion collisions (HIC), the large initial angular momentum can induce a non-vanishing polarization for hadrons with non-zero spin. The global spin alignment of vector mesons, quantified by the  $00^{th}$  element of spin density matrix ( $\rho_{00}$ ), can offer information on the spin-orbital interactions of the QCD medium. Surprisingly large signal of vector meson  $\rho_{00}$  compared to hyperon spin polarization poses challenges to the conventional theoretical understanding of polarization in HIC. Preliminary observations from Beam Energy Scan (BES) of large deviations of  $\rho_{00}$  from  $1/3$  for  $\phi(1020)$  mesons can only be explained by introducing the vector meson strong force fields.

In this talk, we will review the details on global spin alignment of  $\phi(1020)$  and  $K^*(892)$  using high statistics BES data of Au+Au collisions at RHIC and discuss its physics implication.

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